

black, dark testaceous near the apex; it is thickly covered with bright golden pubescence. The base of the petiole is slightly depressed; its sides with some distinct curved striations. The abdominal segments are lined with yellow; the apical one is for the greater part testaceous.

This species is referable to *Oxybelus* rather than to *Crabro*, although it has not got any thoracic laminae, through the submarginal cellule being confluent with the first discoidal, and through the eyes not being strongly divergent towards the vertex. Saussure forms a tribe and Fox a subfamily for *Oxybelus*—the *Oxybelinae*.

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III.—*Note on the Weasel, Putorius (Ictis) nivalis, Linn., and some of its Subspecies.* By G. E. H. BARRETT-HAMILTON.

I HAVE recently had under examination the set of skins of the weasel in the British Museum collection, and have been greatly struck by the large amount of local variation shown in the specimens from various parts of Europe, for many of which the Museum is indebted to the liberality of the late Lord Lilford and of Mr. Oldfield Thomas.

The characters which seem most subject to variation are the general size, the length of the tail, the colour of the underside, and the course and arrangement of the line of demarcation between the colours of the two surfaces of the body. In the far north, as is well known, the weasel regularly turns white in winter, and this character is in itself sufficient to warrant the subspecific separation of those individuals whose winter coat is white from those which, as in England, do not undergo such a seasonal change of colour. In temperate regions the reddish-brown colour of the upperside is retained throughout the year, but the animal is characterized, as in Great Britain, by the possession of a pure white belly. In the warmer South, however, we find weasels with the belly more and more washed with yellow, until, in some of the Mediterranean localities, such as Sicily, Malta, and Algeria, the colour reaches buff or orange. The length of the tail seems to bear some relation to the colour of the underside, for whereas specimens from Great Britain, France, Hungary, Germany, Northern Italy, the Caucasus, and Asia Minor (Van and Erzerum) have short tails, those from Sicily, Malta, Sardinia, Algeria, and Cairo are long-tailed, while those from the south of Spain seem to be intermediate in this respect.

The general size of the animal appears also to be larger in the South, especially in those regions where the stoat (*P. ermineus*, Linn.) does not occur or is rare. Thus specimens from Cairo and Malta are the largest, while those from Sicily and Algeria, although larger than those of England, are not quite equal to the former in size. On the other hand, we have examples of a very small subspecies from Asia Minor and the Caucasus. The changes in the line of demarcation are not so clearly connected with the southern range of the animal, since while specimens from Great Britain, North France, North Italy, Haida in Bohemia, Burgheim in Bavaria, Hungary, Malta, Cairo, Tangier, and Sardinia have this line wavy and undulating, those from Seville, Sicily, Algeria, and the Caucasus show an almost straight line like that of the stoat.

The colour of the upperside does not seem to lend itself so readily to variation as do the characters alluded to above, but it is markedly lighter in the eastern subspecies *M. nivalis Stoliczkanus*, Blanford, of Yarkand, and a new subspecies, *M. n. pallidus*, of Turkestan and Afghanistan.

It is of great interest to thus find paralleled in a mammal the well-known increase of richness in the colour of the plumage of so many birds—such as, for instance, *Parus caruleus*, Linn., *Hirundo rustica*, Linn., *Ligurinus chloris* (Linn.), and *Fringilla cælebs*, Linn.—according as they range southwards.

The following forms are recognizable:—

- (I.) *Putorius nivalis typicus*, Linnæus, Syst. Nat. ed. xii. p. 69 (1766).

*Type locality.* Upsala, Sweden.

*Distinguishing characteristic.* Winter coat white.

I have no series of northern weasels, but it is almost certain that, in addition to the above, they will be found to present other distinguishing characteristics.

*Distribution.* Arctic and subarctic regions of Europe.

- (II.) *Putorius nivalis vulgaris*, Erxleben, Syst. Reg. Animal. p. 471 (1777).

*Putorius minutus*\*, Pomel, 'Cat. méth. et descript. des Vert. Foss. découvertes dans le Bassin Hydrographique supérieur de la Loire, et surtout dans la vallée de son affluent principal, l'Allier,' p. 51 (Paris, 1853).—*Type locality.* Paris.

*Type locality.* Leipzig.

\* Should specimens from Great Britain and Western Europe be distinguishable from those of Central Europe, Pomel's name will be applicable to the former.

*Colour (of British specimens).* Above reddish brown of variable depth, the darkest specimen being a large male from Elgin, Morayshire, Scotland, dated 29th September, 1894: a very pale male from Froyle, Hants, dated 30th January, 1893, almost approaches *P. nivalis Stoliczkanus* in tint. On the whole I think the most intensely coloured specimens of both sexes are those obtained in September and October.

*Beneath.* At all ages pure white, which, however, may become dirty when the coat is very old, as is the case with a male from Cambridgeshire, labelled May 24th, and another from Wales, labelled June 15th. The wavy uncertain line of demarcation between the colours of the two surfaces is in its very variability exceedingly characteristic and naturally causes an equal variability in the area of the white colour of the belly. The latter in large specimens (males) usually reaches a breadth of 25 millim. or upwards. In some individuals, however, as in a male from Tring, Herts, it is very much constricted in the region behind the chest and does not exceed a breadth of 11 millim.; in another specimen, a male from Cambridge, there is a complete band of the brown colour extending right across the belly. Posteriorly the brown colour usually, but not always, encroaches on to the belly, preventing the extension of the white as far backwards as the anus. There are frequently isolated patches of brown colour irregularly distributed over the belly, even in the middle line. Some of the variations bear a very close resemblance to those shown by the Irish stoat, *P. ermineus hibernicus*, Thos. & Barr.-Ham.

The fore feet are partially white.

A trace of the assumption of a white winter coat is visible in two specimens from Cromarty, viz. a male killed on the 30th October, 1895, and a female killed on the 21st March, 1896, which, especially the male, show many white hairs on the flanks and a few on the dorsal region, the latter forming an indistinct saddle-like band over the back.

Although in coloration the sexes are identical, males are far larger than females, have the skull proportionately broader, and show a stronger development of the sagittal crest. The following is a summary of the dimensions (in millimetres) of sixteen adult males and eight adult and two immature females, all British, taken from the British Museum and from my own collections, and for which we are indebted to the kindness of Messrs. F. Austen, J. L. Bonhote, Sir W. G. Cumming, W. R. Ogilvie Grant, E. H. Caton Haigh, S. F. Harmer, E. Hartert, W. L. S. Loat, J. C. Mansel-Pleydell, G. St. Quentin, the Hon. W. Rothschild, and A. Wright.

Sixteen males.						
	Head and body.	Tail.	Hind foot (without claws).	Ear.	Length of skull (ba- sion to gnathion).	Breadth of skull at zygoma.
Maximum . . . . .	235	65	36	16	41	25
Mean . . . . .	214	60	32	15.5	37	23
Minimum . . . . .	208	53	29	15	36.5	21.5

Eight females.						
	Head and body.	Tail.	Hind foot (without claws).	Ear.	Length of skull (ba- sion to gnathion).	Breadth of skull at zygoma.
Maximum . . . . .	195	50	28	13	34	19
Mean . . . . .	178	44	25	12	33	17
Minimum . . . . .	160	36	22	11	31	16.5

Two immature females.						
	Head and body.	Tail.	Hind foot (without claws).	Ear.	Length of skull (ba- sion to gnathion).	Breadth of skull at zygoma.
Boxmoor, Herts ( <i>A. Piffird</i> ), 15th May, 1893 . . . . .	146	37	24	..	..	..
Bletchingley, Surrey ( <i>W. R. Ogil- vie Grant</i> ), 6th Aug., 1895 . . . . .	150	43	21	13	..	..

The dimensions given would seem to show that the British weasel is a variable species not only in the colour of its underside, but also in its size. The ratio of the length of the tail to that of the head and body is about 1 : 4.

We have also specimens of this subspecies collected by Mr. Oldfield Thomas in the Forest of Guinnes, Pas de Calais, France, from Haida in Bohemia, and from Burgheim in Bavaria, of which the dimensions are :—

	Head and body.	Tail.	Hind foot (without claws).	Ear.	Length of skull (ba- sion to gnathion).	Breadth of skull at zygoma.
No. 94. 6. 6. 10. ♂, Pas de Calais . . . . .	212	58	30	..	37	21
No. 94. 6. 6. 11. Same locality, ♂, 27th May, 1894 . . . . .	209	60	31	..	..	..
♂, Haida, Bohemia, 13th Feb., 1896 (not white) . . . . .	210	52	32	9	..	..
♂, Burgheim, Bavaria, 29th April, 1895 (a small faded skin, not white) . . . . .	150	40	21	..	about 38	..

Three unsexed skins from Cs. Somoja, in Western Hungary, may possibly be summer examples of *P. nivalis typicus*. The dimensions of tail and hind feet taken from these (dried skins) reach 62 and 25, 55 and 30, and 72 and 30 millim. respectively.

*Distribution.* Western and Central Europe.

(III.) *Putorius nivalis italicus*\*, subsp. n.

*Type.* No. 95. 11. 11. 1 of British Museum collection, from Grezzana, in the highlands of the Province of Verona, Italy.

*Distinguishing characteristics.* Size perhaps a little larger than, but line of demarcation and length of tail as in, *P. nivalis vulgaris* of Britain, with the underside slightly washed with buff. The following are the dimensions of three specimens presented to the Museum by Mr. Oldfield Thomas and collected through Conte Ettore Arrigoni degli Oddi by Signor dal Nero Vittorio, of Verona:—

	Head and body.	Tail.	Hind foot (without claws).	Ear.	Length of skull (ba- sion to gnathion).	Breadth of skull at zygoma.
No. 95. 11. 11. 1. ♂, Grezzana, Prov. Verona, Italy, 400 metres, 20th April, 1899. (Type.)	..	..	..	..	40.5	22
No. 95. 11. 11. 2. ♂, Villafranca, Verona, Italy, 10th May, 1899	..	..	..	..	38.5	22
No. 95. 11. 11. 3. ♀, slightly immature, Colaguala, Province of Verona, Italy, 54 metres, 2nd Dec., 1898	190	45	..	10	32	17

The skull of a male from Genoa, presented by the late Lord Lilford, has a length and breadth of 41—24 millim.

*Distribution.* Italy.

(IV.) *Putorius nivalis ibericus*, subsp. n.

*Type.* No 95. 3. 3. 10 of British Museum collection, from Seville, Spain.

*Distinguishing characteristics.* Size and length of tail intermediate; belly usually washed with yellow; line of demarcation decided, as in *P. ermineus*; feet white.

	Head and body.	Tail.	Hind foot (without claws).	Length of skull (ba- sion to gnathion).	Breadth of skull at zygoma.
No. 95. 3. 3. 10. ♀, Seville, Spain, 2nd Oct., 1894 (collector A. Ruiz, for the late Lord Lilford). (Type.)	250	50	..	38	22
No. 95. 9. 4. 12. ♂, ditto, 8th June, 1895	250	65	45	..	..
No. 95. 9. 4. 13. ♀, ditto, 3rd May, 1895	120	40	38	..	..

*Distribution.* The Iberian Peninsula.

\* I cannot find the origin of the reference to a variety "*vulgaris*, var. *meridionalis*, Costa et auct.," thus given by Trouessart in his 'Catalogus Mammalium,' i. p. 276 (1898-99).

(V.) *Putorius nivalis numidicus*, Pucheran, Rev. et Mag. de Zool. p. 393 (1855).

*Type.* No. C. 250 (in alcohol) of Paris Museum collection (*vide* F. Lataste \*).

According to Lataste the type of *P. numidicus* came from Tangier, where it was purchased from the dealer Favié in 1841. If that be so, I possess a topotype of this subspecies, in no. 322 of my collection, which I purchased of Olcese, Favié's successor at Tangier, in 1895. The specimen agrees exactly with Pucheran's description as far as it goes, having "la queue plus longue que la Belette, de France, avec une touffe terminale de couleur noirâtre." In other respects it seems to be very closely related to *P. nivalis boccamela*, having the yellow underside, partially white fore feet, and wavy line of demarcation of that subspecies.

*Distribution.* Morocco.

(VI.) *Putorius nivalis boccamela*, Bechstein, Säug. Deutsch. p. 819 (1801).

*Typical locality.* Sardinia.

*Distinguishing characteristics.* Size larger than and tail longer than in *P. n. italicus* of Italy; line of demarcation wavy. General colour of upperside probably darker. Toes of fore feet white. Skull broad.

	Head and body.	Tail.	Length of Breadth		
			Hind foot (without claws).	skull (ba- sion to gnathion).	of skull at zygoma.
♂ (in spirit), Sardinia. (Topotype.)					
<i>Fide</i> O. Thomas .....	206	79	36.6	..	..
♀ (ditto) .....	145	51	26	..	..
♂, Sardinia, Feb. 1898 ( <i>E. N. Buxton</i> ).					
(A very dark specimen.) .....	..	73 †	..	39	..
♂, ditto ( <i>ex coll. Linnaea</i> ) .....	..	80 †	..	40	25

This weasel was, as has been pointed out by Lataste †, described by Cetti in 1774 §; but as he did not apply a Latin name to it, the name *boccamela* must stand to the credit of the next author who used it, who would appear to have been Bechstein.

*Distribution.* Sardinia.

(VII.) *Putorius nivalis siculus*, subsp. n.

*Type.* No. 95. 3. 4. 5 of British Museum collection, from Marsala, Sicily.

\* Mamm. de Barbarie, p. 121 (1885).

† Dimensions taken from dried skins only.

‡ Mamm. de Barbarie, p. 122 (1885).

§ 'Quadrupedi,' pp. 165-186 (1774).



*Distinguishing characteristics.* Size larger, tail long (ratio to head and body about 1 : 3); belly washed with yellow or orange of variable intensity; line of demarcation straight, as in *P. ermineus*; all four feet white.

	Head and body.	Tail.	Hind foot (without claws).	Length of skull (ba- sion to gnathion).	Breadth of skull at zygoma.
No. 95. 3. 4. 2. ♂, Palermo, Sicily, 9th Feb., 1895 ( <i>J. I. S. Whitaker</i> ).	..	..	..	41.5	22
No. 95. 3. 4. 3. ♂, Palermo, Sicily, 26th Feb., 1895 ( <i>ditto</i> ) .....	240	80	38	..	..
No. 95. 3. 4. 4. ♂, Balestrate, Sicily, 15th Feb., 1895 ( <i>ditto</i> ) .....	230	70	38	..	..
No. 95. 3. 4. 6. ♂, Marsala, Sicily, 18th Feb., 1895 ( <i>ditto</i> ) .....	250	90	40	..	..

A single specimen from Algeria (no. 56. 3. 12. 12, from Oran Prov., W. Algeria, ex coll. Parzudaki) agrees with a series of nine, young and old, from Sicily, for which the Museum is indebted to Mr. J. I. S. Whitaker.

*Distribution.* Sicily and Algiers.

(VIII.) *Putorius nivalis africanus*, Desm. Nouv. Dict. Hist. Nat. xix. p. 376 (1818) (nec Pomel, C. R. Ac. Sc. p. 654, 1856, and Lataste).

*Typical locality.* "d'Afrique."\*

*Distinguishing characteristics.* Size large; tail long (ratio of length to that of head and body about 1 : 3); belly orange; line of demarcation wavy; feet partially white.

	Head and body.	Tail.	Hind foot (without claws).	Ear.	Length of skull (ba- sion to gnathion).	Breadth of skull at zygoma.
No. 92. 7. 15. 7. ♂, Pyramids of Ghizeh, Egypt ( <i>Dr. J. Anderson</i> ), 14th March, 1892 .....	280	90	..	..	42	..
No. 92. 7. 15. 8. ♀, Abu Roash, W. of Cairo, Egypt ( <i>ditto</i> ) .....	270	70	..	..	43.5	24
Egypt, ♂, in spirit ( <i>vide O. Thomas</i> ) ..	260	108	47	..	..	..
No. 94. 11. 26. 2. ♂ juv., Malta ( <i>C. I.</i> <i>Wright</i> ), 16th April, 1894 .....	173	62	34	16	37	23
No. 95. 1. 2. 1. ♀, Malta, 1894 ( <i>ditto</i> ), (measured in dry skin) .....	200	85	..	..	..	..
No. 75. 4. 6. 1. ♂, Malta (stuffed) ( <i>vide</i> <i>O. Thomas</i> ) .....	300	105	43	..	..	..

It would appear from the smaller specimens that the tail

\* The species was described from a specimen at the time in the Paris Museum, but which had formerly been in the Museum at Lisbon.

may be short in the young of this subspecies. This is the largest subspecies of the series, and the great size of the stuffed specimen from Malta makes it impossible to distinguish Maltese from Egyptian specimens, at least with the material at present available. In my identification I am therefore glad to be able to follow Mr. Oldfield Thomas, who in 1895 recorded his belief that the weasels of Egypt and Malta are identical (P. Z. S., Feb. 5, 1895, pp. 128-131).

*Distribution.* Egypt and Malta.

(IX.) *Putorius nivalis caucasicus*, subsp. n.

*Type.* No. 94. 9. 2. 3, from the Barey collection (Mons. Hotschal), the Caucasus, at a height of 12,000 feet, 26th June, 1887.

*Distinguishing characteristics.* Winter coat white; size very small; tail short; belly white; line of demarcation decided; feet white.

I make this subspecies with confidence from four specimens, since the characters which they show are very constant in the various subspecies of weasels, and their combination in this form is unique. The white winter coat is represented by two specimens, nos. 97. 6. 4. 4 & 5, a male and a female, collected at Van, Asia Minor, by Major Williams, R.A., and of which the date and dimensions are:—

	Head and body.	Tail.	Hind foot (without claws).	Ear.	Length of skull (ba- sion to gnathion).	Breadth of skull at zygoma.
♂, 18th Jan., 1897 . . . .	196	55	27	12	35.5	17
♀, 10th Jan., 1897 . . . .	173	55	27	13	34	..

There is also one from Erzeroum (no. 84. 6. 3. 5), collected by Messrs. Dickson and Ross in 1840.

*Distribution.* Caucasus and Asia Minor.

(X.) *Putorius nivalis pallidus*, subsp. n.

*Putorius Stoliczkanus*, O. Thomas, Ann. & Mag. Nat. Hist. xv. p. 453 (1895).

*Type.* No. 94. 9. 2. 1 of British Museum collection, from Kokand, Ferghana.

*Distinguishing characteristics.* Colour of upperside extremely light and faded; size intermediate; tail short; line of demarcation distinct; feet white or nearly so.

The characters given above readily distinguish this subspecies from *P. nivalis Stoliczkanus*, with which it has been



formerly associated. I know of no other described weasel with which it might be confounded; it is certainly very widely different from *P. alpinus*, Gebler.

The skull of no. 94. 9. 2. 1 is damaged, but measures about  $37 \times 20$ , showing the specimen to have been about of normal size.

*Distribution.* I have only two bad and faded skins of this subspecies, one of which (no. 94. 9. 2. 1) is a female (with skull) from Kokand, Ferghana, collected by Th. Bary on 20th March, 1893, and procured in exchange from the Branicki Museum, Warsaw; and the other (no. 79. 11. 21. 293) is an unsexed skin from Afghanistan, from the Indian Museum collection.

(XI.) *Putorius nivalis Stoliczkanus*, Blanford, J. As. Soc. Bengal, xlv. 2, p. 260 (1877).

*Mustela vulgaris*, ? var., Blanford, Journ. As. Soc. Bengal, xlv. 2, p. 106 (1875).

The typical specimen was brought by Dr. Stoliczka from Yarkand, Eastern Turkestan, where it was purchased.

A single topotype of this subspecies in the collection is no. 75. 3. 30. 8, and was collected by Colonel Biddulph in Yarkand on the 26th May, 1894. It is very faded, but must have been very light in the coloration of the upperside, is of small size, has the tail rather long in proportion to the head and body length, the line of demarcation wavy, and the feet nearly white. The skull has been damaged, but is small, measuring not much more than 36 millim. in total length.

In his original description Blanford states that the colour of the typical specimens was pale sandy brown above, with a small white spot close to the anterior angle of each eye; the tail throughout the same colour as the back; the fore feet white, mixed with pale brown above; the hind feet only whitish at the edges; the soles of all the feet thickly clad, only the toe-pads being naked; the total length 306 millim.\*; of which the tail without the end-hairs reached 58 millim.\*; the length of the hind foot and tarsus without the claws 30\* ; and the weight 5.2 ozs.

[(XII.) ? *Putorius nivalis subpalmatus*, Hemprich and Ehrenberg, Symbol. Phys. dec. ii., at end of article on *Herpestes leucurus* (1833).

I regret that I am unable to throw any light on the identity

\* Converted to millim. from the inches as given by Blanford.

of the still lost smaller weasel of Egypt, the status of which has been already discussed by Mr. Oldfield Thomas\*. The original description, which is in Latin, is rather peculiar, and interesting enough to merit reproduction here. It runs as follows:—"Quarta *Mustelinorum* forma *Mustelæ vulgari* admodum affinis est. In itinere *Mustelæ subpalmatæ* nomine eam distinximus, digiti enim membrana latius conjuncti erant, statura minor. In domibus ægyptiacis Cahiræ et Alexandriæ murium vulgaris socius. *Ælurum* (αἴλουρον) non hanc, sed *Felam Bubastis* cum *F. maniculata* fuisse serius docebo."]

#### IV.—On *Squirrels of the Sciurus MacClellandi Group.*

By J. L. BONHOTE.

FROM a close and careful examination of a large series of skins of this species from India and China it seems to me that the following races may be easily distinguished. The most noticeable feature of the group is their variability in a very small area, and it will be seen that there are no less than three forms to be found in the province of Fokien, China, and specimens of all three kinds may be obtained within an easy radius of one place, namely Kuatun. At first I was inclined to regard it as an instance of polymorphism, but a further investigation has satisfied me that such is not the case. In the first place, the differences between the three forms are constant and there is little or no variation among themselves; secondly, one form (*Swinhoei*) is apparently different in habits, being never found amongst the tall conifers, as is the habit of all the other races, but being always found on the ground and among low scrub. With regard to the other two forms, the typical locality of the one is Foochow, on the sea-coast, and of the other Ching Feng Ling, a village about 2000 feet up in the mountains; that they should both be found at Kuatun is not surprising, since Kuatun† is a village halfway up a high mountain, and it may well be that the form which inhabits the valley should be different from that found at a greater altitude. Of the Indian races there is nothing much to be said; those from Tenasserim and the Straits Settlements are, as might be expected, much brighter than those from the north, while specimens from Manipur show a very interesting intermediate stage.

\* P. Z. S. 1895, pp. 128-131.

† O. Thomas, Proc. Zool. Soc. 1898, p. 769.